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THE
DETERMINATION
OF
SEX.

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By
DR. JEAN WODEY.

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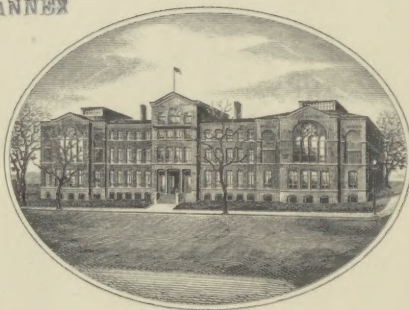
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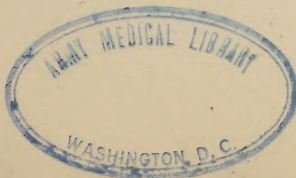
....BY....

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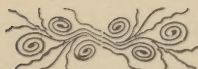


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THE DETERMINATION OF SEX

P R E F A C E .

In venturing upon a subject of such interest to the human family, I feel that I do not stand alone in my pretensions to be able to influence sex.

This path has been trodden by men of great eminence. Their experience along these lines are matters of record, by them I have been assisted greatly in my investigations, and my experiments were based on such theories advanced by them which seemed to me best suited to the subject then in hand.

While I do not claim in *all cases* to have succeeded in controlling the processes of nature, yet I was usually enabled to exert an influence which seemed to change the course of natural tendencies and bring forth most happy results.

Undoubtedly this subject is receiving more

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attention than it has for several decades past, and I trust that these labors in the province of Embryology will result in attracting universal attention to the matter, and that it will also stimulate an interest in the breeding of human beings, at least equal to that shown by the ancient Greeks.

Much attention has been paid of late years to the breeding of Cattle, the fine blooded stock exhibited at our stock shows is the result of careful study—experience in cross-breeding, etc. A glance at the slums of Paris, London and other large cities gives proof that the human family has been sadly neglected in this particular.

I do not intend in this little book, to more than merely call attention to this fact, for fact it is, that in too many cases, especially in large cities, lust has crowded out love, and no attention whatever is paid to the probagation of physical and moral healthy children.

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It is impossible to thoroughly cover the subject matter in a small book, volumes upon volumes have been written, and no doubt will be written on the subject.

I shall, however, try to give in a condensed form, and in language that is understood by the unprofessional, the result of my experience along these lines, with quotations from the works of other more eminent practitioners, so that the man of average intelligence may study himself and his consort and learn herein the course to be pursued to attain his desires.

This is my object in writing this book, the field is vast, and no subject touching the human family is of more importance.

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CHAPTER I.

THE ORIGIN OF SEX.

From the earliest times, extending back into the ages of myth and fable, this question of the origin of sex has puzzled the men of science, the subject has been discussed time and again only to result in wide differences of opinion.

Theories have been advanced without number, some that the sex is determined at the very inception, others, that sex is undetermined at inception, and is influenced by conditions, temperature, diet, etc.

The different manuals which deal with the question seem to lean to the theories which have been propounded in early days, that sex has been regarded as already determined in the ovum, or else the origin of the sex, has been

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assigned to the earlier stages of development.

Some of the earliest writers maintain that the reproductive glands of the two sexes contain generative matter distributed to the right and left, that the right ovary of the female and the right testicle of the male contained generative secretions for the production of males, while the female left ovary and the male left testicle produce only females.

The example of many creatures, especially birds is cited; they lay two eggs in one month, of these one is female the other male, in this instance nature provides for an equal increase of males and females. This would lead to the supposition that in the case of the female of the human family, one month will develop a female ovule, and the next month a male ovule will reach perfect development, so that after the first birth it would be possible to form a correct idea of the distribution of the ova, by noting the time of birth of the new born child

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counting back to the datum that it would be the turn of the ovum of the next month to develop the opposite sex, if this theory is correct, it would be easy to fix the given month in which either a male or female can be developed after the birth of the first child.

“The Secret of Nature Completely Discovered, both in the Procreation of Man, and for the absolute choice of the Sex of Children” is the title of a publication by J. Ch. Hencke, at Brunswick in 1786. The author relies entirely upon the theories noted above, that the offspring being evolved out of a mixture of the generative secretions of the two sexes, by manipulation can be induced to develop either a male or female individual.

The Author asserts very precisely that the generative matter of the right testicle serves to fructify ova from which males are developed and the right ovary of the female containing generative secretions for the production of the

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male sex, consequently it is only necessary for man to discover some device which will during the act of generation eject the semen from his right testicle to an ovule from the right ovary of the female to produce male offspring, or to the contrary, from the left testicle to an ovule from the left ovary of the female to produce a female. Hencke's remedy was the ligation of one of the testicles but when this severe proceeding proved impracticable, he substituted the elevation of the testicle by means of its suspending muscle, insisting that the semen was discharged by one testicle or seminal vesical alone, in the case when the other testicle was raised up.

The Jesuit Monks in France, must have believed in these theories, for in the beginning of the eighteenth century, and up to the present time, they advise their female communicants
“to lie on their right side during and immed-

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iately after sexual intercourse," in order to bear male children.

Statistics show that in warm climates the whole quantity of blood in the inhabitants is less than in temperate zones. The process of respiration in the inhabitants of warm climates is also not so free as in the case of those who inhabit temperate or cold zones; that the birth of males exceeds that of females in the arctic zones, and that females largely exceed that of males in the torrid zones. The author Vilson gave this subject much attention, he adduces the following instances from the Soudan, the Wagandas, a war-like race, kill the men and old women of their conquered foes. The children, girls and young women they lead into captivity. On one occasion 480 of the women gave birth to children on their march. Of the new-born 79 were boys, 403 were girls.

Everywhere he found the anticipation of an excess of girls supported and confirmed, this

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led him to formulate and advocate a law that the better nourished and superior parent tends to produce the opposite sex, as in these cases the women are in an inferior position, poor nourishment and almost exhausted condition.

From this statement, that the sex of the worse-fed parent perpetuates itself, a theory has been deduced which is described as *cross-heredity of sex*, this theory has found favor with some of the leading investigators of this subject, and simply resolves itself into this phenomenon, that if the father were the stronger and more ardent, the result of impregnation would be a female, and *vice versa*, if the wife is the stronger and more ardent, male children will be the result. If the reader will glance with his mind's eye among his acquaintances he will find that this is the general rule.

Old women with young husbands are also inclined to bear male children, while from illegitimate births more girls result than from wed-

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lock. This is no doubt due to the active excitement of the female at the time at which the inception took place, that is, shortly after menstruation, when the woman is most excitable.

Many authors agree that the older of the two parents has a greater preponderance in favor of the propagation of his or her sex, and that the physical maturity of the male should enable him to propagate his own sex, either in connection with younger or older women, but more especially with the latter.

The state of nutrition also has an influence upon the development of the embryo, hence it is shown that in years of famine more males are born than females, and in prosperous times, when people are well fed more females are born.

In studying this subject all these conditions must be taken into minute account if we contemplate to change or divert the laws of nature in the probagation of sex.

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In the earliest forms of the embryo up to a certain period it has so far been impossible to discover any distinction of sex, soon, however, elementary male and female forms of the organs of reproduction can be recognized developing themselves in the embryo out of the substratum of formative elements, attaining usually to complete development within 90 days from impregnation.

Hence some authors (Schenck) assert, that the ovule has a capacity to transfer during the process of segmentation to a corresponding cell, substance out of which the generative organs will be subsequently developed, the force contained in the ovule, so that the cell-substance may afterwards take up the office of providing for the preservation of the species.

The cells of the ovum derive this power from the protoplasm of the ovum and retain it in a rudimentary form for one sex, whilst for the other they possess it in full measure. This

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energy is contained in the ovule itself in an unknown condition. In it lies the basis of the formation and development of the future sex.

Consequently if male off-spring is desired where the physical nature of the parents, especially the wife, is such that only female children can be expected, it is not sufficient to simply follow the treatment as laid down by Hencke (although in many cases that may prove to be sufficient). The wife should also follow a dietary treatment for three months before and after impregnation until the sex of the embryo is fully developed.

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CHAPTER II.

EXPERIMENTS ON ANIMAL LIFE.

It is asserted that the generative laws governing plants, animals and the human family are quite similar, experimental matter is however more easily obtained among plants and the lower animals, consequently critical examinations have been more easily made with the latter.

The experiments of Albin of Naples, the great poultry-breeder, showed that hens for eight days after being separated from the cock laid none but fertile eggs.

On the ninth and tenth day the fertile and infertile eggs were of equal number. On the twelfth day all the fertile eggs were infertile. However fertile eggs frequently appeared on the eighteenth day, these must have been impregnated by spermatozoa which had remained

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in the folds of the mucous membrane of the uterus.

Hens which had never been impregnated, and hens which had not been impregnated for a month, in three days after impregnation laid fertile eggs, which continued to increase.

Albini's experiments led him to the following conclusions:

That the egg of the hen is perfectly free from micro organism when it is laid. That hens can leave the eggs which they are hatching, the shell may be partly broken off and again replaced without the embryos necessarily perishing. Care must however be taken that no fungoid growth reaches the germ as this might be fatal to it.

On the origin of sex, Albini aduces the following as the results of his experiments.

From three to six days after intercourse with the cock the hens lay eggs, from which on the average an equal number of males and

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females are developed. The number of males being somewhat greater than that of females in the warmer part of the year.

Eggs which are laid from ten to fifteen days after complete separation from the cock, when hatched generally gave a greater number of females, a majority of which however died of anæmia, which he describes to be due to imperfect fertilization.

Albini inclines to the theory that the principal cause of the development of sex lies in the degree of ripeness of the ovum, that in the case of animals which bear many young, the last are mostly males, and explains this by the hypothesis that the ova passing through the Gallopian tube thrust the semen back, so that the ova which comes behind are therefore fertilized in a more advanced stage.

Thury's experiments with poultry breeding show, that the last eggs laid by singing birds usually develop males, and that in case of hens

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a large majority of the later eggs were males, his method by which breeding experiments can be conducted on a regular principle is as follows:

“For this experiment a number of hens are taken which may be anticipated to be ‘setters’ unless the use of incubators is preferred. The hens are to be separated, and the eggs which each one lays in her own particular nest are to be marked with numbers corresponding to the days on which they were laid.

“The eggs of the different hens are now to be rearranged, so that the eggs which each particular hen is given to hatch shall, as nearly as possible, have the same numbers.

“For example, if the number of the hens be six, and the period of laying up to the time when the hens begin to set be thirty days, one hen will have eggs to hatch with the numbers 1 to 5, the next 6 to 10, the third 11 to 15, the fourth 16 to 20, the fifth 21 to 25, the sixth 26 to 30.

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“In this way the doubt will be avoided, which necessarily arises, if I give the eggs of one hen, although marked, to be hatched by her alone.

“In the latter case, it can very seldom be known with a certainty from which egg-shell a cock or hen issued.

“In this experiment, on the contrary, one can quietly wait until the cocks and hens in the growing broods of the different hens can be clearly distinguished and numbered, seeing that each brood has numbers (of the days of laying) of very nearly the same value.

“The experiment is easier and less subject to the possibility of error when the eggs belong to different varieties and are taken from known parents.”

Pagenstecher is another writer who has made extensive experiments along these lines, after a critical exposition of Thury's theory he adduces the following:

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1. Sex depends upon the ripeness of the ovum at the time of fertilization.

2. The ovum which, at the moment of fertilization, has not yet reached a certain degree of ripeness, produces a female. If this degree of ripeness has been passed, the ovum, upon fertilization, produces a male.

3. If at the time of rutting a single ovum is detached from the ovary, and descends slowly through the genital canal (animals which bear a single off-spring), fertilization taking place at the beginning of the rutting suffices to produce a female, and at the end of the rutting to produce a male, provided that the change in the condition of the ovum takes place normally during its passage through the genital canal.

This same writer claims that fertilization often alters the determination of sex of the germs which attain to development in the ova. The point of time in the life of an ovum, at which it has reached that degree of ripeness

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which gives it such a character that the semen can no longer affect the determination of the sex cannot be absolutely settled.

A more powerful bull might beget female calves earlier in the late rutting time than an older one.

Fiquet, the French writer, recommends feeding the bull abundantly for several weeks before serving and curtailing the cow before and after service, in order to produce female calves.

Plüger made some important experiments with frogs and tadpoles, among the latter many are found whose sex is not yet determined, they are in a hermaphrodite condition, out of which they develop into either males or females.

He found that amongst the frogs in a state of nature 36.3 per cent. are males and 63.7 per cent. are females.

His experiments were on a line of using thinner or thicker semen to influence sex, reducing the number of males with thin semen

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and increasing the number of females with thick semen.

Girou de Buzarcinques, the great French breeder, says that the male sex is more common in the cases of scantily nourished animals.

He takes into consideration the character, the temperament, the food, etc. of the parents, his views are more fully set forth in another chapter.

Miescher has paid attention to the Rhine salmon which go up that river from the sea each year in a well-nourished condition to spawn in the fresh water streams. They remain there several months and lose much of their muscular substance, resulting however in a great development of the sexual organs and of sexual secretions.

Temperature exerts an influence on sex in plants, hence Lenkhart writes, that in plants which produce separate male and female blossoms, the male blossoms are more numerous

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when the temperature is higher, while more female blossoms are found in damp soil or shaded localities.

Knight, was another noted writer, who found that mellons and cucumbers produce male blossoms under higher temperature and female blossoms under lower temperature and on low swampy ground.

All of which demonstrates that, such external factors as warmth, light, dryness, and diet have an influence on sex in both the animal and vegetable kingdoms.

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CHAPTER III.

FROM THE EARLIEST WRITERS ON THE ORIGIN AND DETERMINATION OF SEX.

In order to do the subject justice it will be necessary to note the experiments in the province of Embryology, made by the eminent practitioners and writers of the past, and to study the result of the statisticians, the literature dealing with the subject is vast, this little book only contains brief quotations of interesting matter which may serve to elucidate the subject matter; volumes might be filled with the claims and disputes of writers on the subject without giving us reliable data to work on, nothing of importance to the subject is however omitted.

Among the statisticians Oesterlen gives the following statistics of births based on the popu-

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lation of about one-half of Europe, these are taken from the court calenders of births and are reliable.

In a total of 59,350,000 births the males showed an excess over females, the proportion being 106.3 boys to every 100 girls, the average of the total number of the various states correspond very nearly with the numbers in the several states, in some states the proportion of boys to 100 girls was 107.2 while in others only 105.2 no difference worthy of consideration.

Statistics taken at other times, during and immediately after famine years, showed as high as 129.8 births of boys to 100 girls.

These statistics go to strengthen the theory that the poorly nourished female will bear more male than female children. So far as I have been able to secure statistics in the United States more girls are born than boys, this is no doubt due to the fact that the middle and

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poorer classes (which represents the greater majority of the population of all countries) in the United States (living in the same zone as that from which Oesterlen collected his statistics) are better nourished and eat more food containing starch (sugar) than do the inhabitants of Europe, where the same classes live chiefly on vegetables and fruit, and indulge quite sparingly of meats.

Darwin in his "Descent of Man" quotes some statistics.

Of horned cattle 94.4 males are born to 100 females, in grey-hounds 110 dogs are born to every 100 bitches; of pigs, rabbits and pigeons more males are born than females, while of poultry only 94.7 males are born for every 100 females.

Sadler in 1830 gathered statistics to show births resulting from marriages between persons of unequaled ages. I will only mention some of the results.

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If the man is older than the woman, more boys will be born, the ratio being 121.4 boys to every 100 girls. If both the parents are of the same age, more girls than boys will be born, the ratio being 94.8 boys to every 100 girls. If the woman is older than the man the difference is still greater, the ratio being 86.5 boys to every 100 girls.

Wall, a noted writer, relies on Sadler's statistics to the exclusion of others, and lays down the principle that in the intercourse of two quite young parents the male sex will predominate. If, however, the age of the man is much greater than that of his wife, he insists on the excess of the females among the new-born.

The writings of the great French breeder, Girou de Buzareingues are of great value on this subject; this writer asserts, that male sex is more common in the cases of scantily nourished animals, and is often the case with domesticated mammalia. 28

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He supports the theory of the influence of difference of age in the parents upon sex of offspring; he takes into consideration the character, the food, temperament, etc., of the parents, also their size, physical condition and strength. He mentions a number of facts which he observed in the human subject.

He outlines the expenditure of force, mental and physical, entailed on the parents by their occupation, and then sets forth ten very precise particulars from which, in any given case, the sex of the off-spring which will result from the wedlock in question may be known. I mention the following case: A vigorous man married a corpulent, melancholy elderly blonde; seven daughters were the result of the marriage, all of them resembling their father and grandfather. He mentions other similar cases which would be interesting to the reader, going to establish as important factors, the preponderance of temperament, or the physical disposi-

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tion of procreation of the species, to quote them all would lead us too far from our subject.

Dusing first experimented on horses—he found that the state of nutrition of the parents influenced the development of the embryo; that the best fed and better conditioned produced females, the worst males.

As a result of his experiments with the human family, he laid down the law, that if the mother was well nourished, old semen operating upon a young ovum would produce a majority of female off-springs. On the other hand, if the mother was insufficiently fed, young semen operating upon an old ovum would produce a majority of male children.

Aristotle, claims that woman supplies the primary material for the development of the future individual. It is the function of man to give the impulse, in consequence of which the future individual comes into being.

Richarz theory, is that the primary impulse

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upon which the whole process of generation depends lies in the organs of the female. Here lies also the substratum in which is, as it were, the center of gravity of the special generative process. The function of the male sex is to occasion a change in the germ.

If the female's generative capacity reaches the highest point the result is a boy, who in external appearance resembles his mother.

If the forces which act in the female are inferior to those of the male, the result will be a female. She will resemble her father, and will also inherit her father's temperament. While personal appearance and other characteristics will correspond rather more with one of the parents, yet in every case the influence of the other parent will make itself felt, and will exercise more or less influence over external appearance and other characteristics.

Robin the well-known French histologist, finds that in warm climates the whole quantity

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of blood in the inhabitants is less than in the temperate zones. The process of respiration in the inhabitants of warm climates is also not so free as in the case of those who inhabit temperate or cold zones. It is quite evident from this that some process connected with nutrition, and with the passage of nourishment into the blood is responsible that the number of male births exceed those of females in the cold zones. Schenk draws the conclusion from the above, "that if the women were subjected to such a regime as would naturally effect their respiration and the quality of their blood, more boys than girls or the contrary, might be bred. If so, breathing an atmosphere containing more oxygen, with a corresponding diet, would be the right receipt for producing in the woman such a basis that in the course of development the next generative organs (which Robin considers the anatomically more perfectly developed) might be evolved instead of the female."

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Robin lays down the law that women who only seldom indulge in sexual intercourse will bear females, and that fruitful and voluptuous women generally bear males, being the old and well established theory of the cross-heredity of sex.

Dr. Heinrich Janke who has carefully studied the older literature on the subject fully agrees with this theory, in his publication (Stuttgart, 1896) he refers to many historical speculations and the various hypotheses on the origin of sex, disseminated by the earlier writers.

Mayerhofer is a staunch champion of the theory of cross-heredity of sex. His experiments among animals is mentioned in another chapter.

Mayerhofer stoutly maintains that the human ovary does not contain male and female ova already possessed of sex, but that sex is developed after intercourse and is influenced by

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temperament conditions and diet. His own experiences and observations of others has led him to the following conclusions:

.That in the lower animals and in plants food plays a principal part in the development of sex. That the sex is not generated, but depends upon external influence over the fruit which is in a state of development.

The reason this fact has been better demonstrated with the lower animals and with plants, is that such subjects for critical examination are more easily obtained, but the generative laws are so uniformly similar that the same may be applicable to the human family.

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CHAPTER IV.

THURY'S THEORY.

Mons. Thury, professor at Geneva, published at Leipzig, in the year 1863, a book on the law of breeding sexes, which attracted wide attention.

As the result of many successful experiments, the author shows how the sex of plants, animals, and of the human family may be influenced.

I have already quoted from this author, in relation to his experiments in poultry breeding, which led up to his research among the higher forms of creation. The principal point in his doctrine of the origin of sex in animals, claimed by him, is the condition of the ovum at the time when it is fertilized.

If the ovum has reached the advanced stage

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of ripeness, the result of fertilization will be a male, which will develop itself out of the ovum. If, however, the ovum has not reached the advanced or perfect stage of ripeness, when impregnation takes place, a female will be the result. His theory being substantially that, the cause of sex lies in the ovum developing itself in the ovary, and that the only factor in the development in either sex is the condition of ripeness at the time of impregnation. Hence, according to Thury, a woman who is impregnated immediately after menstruation is almost certain to bring forth a female, while if impregnation takes place nine to ten days later, or when the ovum has reached the advanced stage of ripeness, the result will be a male.

Funke in his *Physiology* published in 1866, makes the following remarks on Thury's theory:

“Although the origin and determination of sex is not indisputably proved to depend upon the degree of ripeness of the ovum, it appears

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to me that we have not reached the right time for determining the factor upon which it does depend. These experiments have been made to repose upon a fact, which fact certainly proves beyond the possibility of dispute, a relation between the fertilization of the ovum and the subsequent sex. The fact is that, in the case of certain creatures capable of parthenogenesis (unisexual procreation), we find that, from unfertilized ova one sex always results, and from fertilized ova the other. But any closer interpretation of this function of the semen is rendered nugatory in advance by this, that it is in some cases the male and in others the female that results from the unfertilized ova."

Schenk in his "Theory on the Determination of Sex," has the following remarks on Thury's theory:

"Thury's theory can be very suitably brought into agreement with the theory of

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cross-heredity of sex, and explained by the assistance of that view. The cow at the beginning of her rutting, is not in a condition of great sexual vigor. If the ovum be effectually fertilized, it may be supposed that the bull in procreative activity the superior consort, will be fitted not to reproduce his own sex, but that of the weaker cow. At the end of the rutting period the cow, which is brought to the bull, has her ovum ripened to the highest possible degree, and in consequence, when compared, from a sexual point of view, with the bull, is distinctly the stronger and superior, and a male calf is in this case the result of conception.

“According to the theory of cross heredity of sex, female creatures should in the former instance be produced, and in the latter males, which same result is reached in accordance with the theory of Thury.

“Attempts have been also made to apply Thury’s theory to the human species. The

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menstruation of women has been compared to with the rutting of the lower animals, and has been considered a protracted, oft-repeated rutting. Now, as an ovum is specially developed every month, it follows that this ovum requires a certain part of a month to attain a more or less advanced degree of ripeness. According to this, the ova which are fertilized a short time after menstruation will develop only female individuals, whilst those which have had a longer time in which to attain to ripeness would develop themselves into males.

“The mucous membrane of the womb ought, about ten days before the beginning of menstruation, to thicken itself distinctly in consequence of a turgescence and dilatation of the vessels. In consequence it appears swollen and loosened, and it has reached the culminating point of swelling when the menstruation is at its highest. After menstruation the swelling does not immediately decrease, but lasts on for

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about nine days, until the mucous membrane returns to its normal condition (Hensen).

"Thus it seems that the swelling and hyperæmia in the womb appear at the same time as the conditions which lead to the ripening of the ovum. The fertilization of the human ovum would be, therefore, most efficacious at the time when the mucous membrane of the womb is also most appropriately prepared, and it is propable that the same moment is the one when all the other coincident factors are of a sort best calculated for the reception, the fixing, and the protection of the ovum. It is simultaneously with these processes in the mucous membrane of the womb, and in the other parts of the generative organs of the woman, that the ripening of the ovum is effected.

"Now it may appear not to be a matter of indifference (and may very likely even have some connection with the development of the sex) whether the ovum is fertilized at a period

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during which the mucous membrane is passing through its changes in order to reach its highest point of swelling, or at the time, when, after menstruation, the mucous membrane is, during so considerable a period (nine days) passing through a retrograde metamorphosis in order to return to its normal condition. This protracted process seems to correspond to the protracted rutting in the form of menstruation. If so, the human uterus, as Thury's theory would declare, would be prepared, to a certain extent, in different ways, for the reception of the ovum, according to the different sex-condition of the future child.

“We have mentioned above that on the occasion of Thury's experiment, the desired result was effected in twenty-nine cases. Pagenstecher, Siebold and Koll have dealt critically with Thury's work. Coste was not in a position to confirm these experiments, nor to verify them. In order to test Thury's results as ap-

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plied to the human subject, Schroder obtained the assistance of young women who were in a position to give him positive and accurate information respecting the time at which they became impregnant. The women could name the day on which they had had sexual intercourse, and knew the data of the last menses. From careful calculation of the interval between these dates, it was possible to ascertain approximately at what stage impregnation of the ova took place, the degree of ripeness of the impregnated ova could also be inferred from the space of time that had elapsed since the last menstruation, and the sex of the foetus was noted. Schroder found that on an average of twenty-six cases in which boys were born the conception had taken place 10.08 days after menstruation; on an average of twenty-nine cases in which girls were born, 9.76 days after. In consequence, he was not able to confirm Thury's theory in the case of the human subject."

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CHAPTER V.

SCHENK'S THEORY—THE DETERMINATION OF SEX,
By Dr. Leopold Schenk, Professor at the Imperial and Royal University, and Director of the Embryological Institute in Vienna—is the latest publication on the subject. A translation was published in the United States, by the Werner Company in 1898.

Dr. Schenk, while quoting liberally from Hencke, Thury, and other recognized authors on the subject, proceeds to throw to the winds nearly all the old theories, claiming that by dieting, alone, he was enabled to exert such an influence, that where women, who by nature and environments were destined to bear only females, yielded to his treatment, the result was the birth of male children. He disclaims however, being able to exert a counter-influence

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in favor of females, where by nature and environments the mother was destined to bear only male children.

This work has created as much interest as did the writings of Henke, and Thury in their days, as the writer is able to adduce positive results in support of his theory, claiming to have been successful *in all cases where he was allowed full control*. This is a remarkable statement, as the theories of other writers, when put to the critical test, were found to have a large percentage of failures and disappointments.

Schenk enters minutely into the matter of diet, process of combustion, and the chemical constituent of the evacuations, he falls back on the theory of cross-heredity of sex, and attempts to place it on a firmer foundation by the results of his own experiments. He calls attention to the products of excretion which are eliminated from the bodies, those which are eva-

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evacuated being the final product of the oxidation effected in the body by the process of combustion. Some are evacuated from the body as so much inert matter which has not been affected by the digestive juice, nor altered in any other way. Others are given off from the body in various states of oxidation in the urine, or dung, or else in a gaseous form by the lungs.

Many substances are secreted by the kidneys and appear in the urine, in which fluid are found nitrogenous products of secretion, others free from nitrogen, and inorganic substances. Among the latter he selected the carbo-hydrate (sugar) found in the urine, consisting of grape-sugar, cane-sugar, and cellulose, claiming that, the excretion of a carbo-hydrate in the urine, is evidence that the process of combustion in the organism has not been complete, due to some impairment, by which all the combustible substances are not fully used up. Sugar in normal urine, may not alone result

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from carbo-hydrates found within the body, due to imperfect combustion, but may have been swallowed, a person, having eaten an excessive quantity of sugar, will easily discover an increase in the quantity of sugar in the urine, should no sugar be found in the urine it is evidence that complete combustion has taken place. Experiments with Champagnes, various other wines and sweetmeats, which contain great quantities of sugar, gave as a regular result perceptible sugar in the urine. Many individuals are found in whose urine not even a trace of sugar is discoverable, hence it seems not improbable, that in a perfectly normal condition of the organism it is possible for such individuals to completely burn up the whole of the carbon-hydrates, either taken into the organism or formed within it.

Such persons, in consequence of their metabolism being normal, are able to carry out the process of combustion to the full, and their ex-

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cretions are of such a nature as should represent the normal processes.

He further calls attention to the fact, that most inquiries respecting the presence of sugar in normal urine had been made in the case of men alone, and that, so far as regarded the presence of sugar, the urine of the human female had been little observed, and never quantitatively and qualitatively compared with that of man. He then proceeds to quote from Nicolai Ivanoff, in his dissertation (Dorpat) on the question of glycosuria in the case of pregnant women, lying-in women, and suckling women, as follows:

“A physiological glycosuria in the case of the pregnant, or of those who are lying-in, has, so far as present investigations have gone, never been established, and certainly not to the extent which Blot asserts. Sugar occurs in human urine more frequently than has been hitherto supposed, but absolutely never *in con-*

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stant and increased quantities in that of pregnant and lying-in women."

Schenk proceeds to quote from Pettenkofer and Voit, going to show that, the total metabolism is greater during labor than during rest. That the food requisite for a normal grown man whilst in a state of rest is reckoned at 30 units of heat for each kilogramme of weight. That in the case of a full grown working man, whose weight was 70 kilogrammes, the necessary food represented about 2,000 units of heat. Voit cites a description of the average working man, the requisite food supply consists of 118 grammes of albumen, 56 grammes of fat, and 500 grammes of carbo-hydrates, equivalent to 3.053 units of heat gross, or 2,799 units of heat net.

That the women being smaller and lighter of weight than the man, and her labor less, when comparing men and women of the same age, it is evident that in her case a less provis-

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ion of force, and in consequence less food, under similar circumstances, is necessary than for the man. He assigns to a working woman a food supply of 94 grammes albumen, 45 grammes fat, and 400 grammes carbo-hydrates, which correspond to 2.444 units of heat gross, and 2.200 units of heat net, whilst the whole of the food taken by an average workingman is fixed at 118 grammes albumen, 56 grammes fat, 500 grammes carbo-hydrates, equivalent to 3.035 units of weight gross, and 2.749 units of weight net.

Shenk proceeds, by calling attention to the difference of metabolism in both sexes, and calls attention to one peculiarity only of the human female, which is, that the female organism, in consequent of the less abundant formation of tissue, is on a smaller scale than that of the male, and yet the amount of sugar given off in the urine is under normal conditions, about the same quantity as in the males, showing a greater

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loss of heat in the female than in the male.

The writer argues, that an indispensable condition of the ripening of the ovum in the female organism is that the metabolic process shall be normal. That when these changes are being effected as perfectly as possible, *sugar is entirely absent from the urine.*

The following is quotation word to word: "In the first case we shall have not only a less ripe ovum, but very likely also a less well nourished ovum. An ovum of this sort has not so fully attained to all the characteristics and powers inherent in its protoplasm, and, in consequence, seems fitted to develop only a female individual. In such an ovum the several cell products of the ovum, which have to develop themselves into the future embryo, will be arranged for the growth of a female. Not only will female organs of generation be developed from it, but also the elements of the future individual will be feminine.

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“On the contrary, if in the mother-individual all the substances developed in, or taken into, the organism undergo combustion in such a manner that no sugar is found in the urine, not even in the smallest quantities, then an ovum can be developed such as is required to produce a male individual. Out of its protoplasm in the course of evolution elements form themselves, whence male cells are developed, which correspond to the development of tissues and forms of the male individual. Some of the cells, viz: those which ultimately become the elements for the continuation of the species are planned for the female sex.

“It follows from all this that the result depends to a great extent both upon the diet chosen, and upon whether it has been rightly chosen to suit the organism, whether it is possible to exert such an influence as may so support the ovum in its maturation that in its development it may form itself into a male individual.

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It must be observed in advance that such an influence as may be effective for the production of sex must not be applied to an already fertilized ovum, but must be applied to an ovum in development before its fertilization.

“Indeed it is even of greater importance to know that the mother individual has been for a considerable period anterior to the fertilization of the ovum provided with the requisite food, care must also be taken that after conception a similar befitting diet is continued for the mother, which diet should resemble that previously provided.”

The writer further asserts, that investigation of the urine according to recognized methods must accompany the system of diet adopted, so as to prove that all traces of sugar have disappeared from the urine, that when the diet has been so altered by omitting excessive quantities of starch and sugar, the excretion of sugar in the urine ceases, and only makes its reappearance after a long interval.

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Having discovered that the determination of the future sex was connected with the presence of this sugar, the writer directed his entire attention to the subject of dieting, and claims to have been rewarded with remarkable results. Among his experiments, he mentions the case of a woman who had born five children, and, after violent and continuous mental excitement, was suddenly seized with diabetes mellitus. He frequently examined her urine, and always found an abnormal amount of sugar. She had given birth to two children whilst suffering from diabetes, both being females, but had born males only whilst she was strong and well. He claims that diabetes amongst women has a marked influence upon the functions of the sexual organs, that menses cease, occasioned by an abnormal condition of the womb and of the ovaries which become atrophied. When the cause of the complaint is removed from the female genitals the sugar also disappears from the urine.

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Schenk calls attention, to a family of his acquaintance, where he knew the grandmother, a daughter and two grand-daughters. The grandmother had, including the third generation, fifteen descendants, of whom twelve were girls and three were boys. Two of the boys were the sons of the grandmother, and the first two children she had born. She was under medical treatment, and the analysis of the urine showed a considerable quantity of sugar. She had six daughters. One of these daughters who survived the others, had five children, amongst them one boy, who soon died. Two of the grand-daughters of the family bore only females, he examined the urine of all the mothers of this family, and always found sugar in it.

He therefore contends, that the condition of a woman in a well-regulated married state, who bears five or six girls, one after another, must be considered to be of a kind that departs more or less from the normal, and in such cases,

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dieting to reduce the sugar, to the quantity easily consumed by combustion, leaving no trace whatever in the urine, is recommended.

This treatment consists of giving the mother a highly nitrogenous diet with fat, and adding only so much carbo-hydrate as is absolutely necessary to prevent its want being felt. It should be commenced about three months before impregnation, and continued for three months after impregnation. Such treatment will so effect the ovule of a human female, that when it becomes fertilized, it has so far ripened by the process of nutrition conducted in the organism of the mother, that when it attains the stage of development, it resolves itself into cells which compose an organism containing male characteristics.

Schenk relates the following examples of women who had born only daughters, who after subjecting themselves to his treatment bore males, and continued to bear boys only so long

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as they continued to observe the prescribed dieting treatment.

1st. Was a woman of a family in which principally female children had been born, who showed the greatest willingness to do anything, in order that she might have male off-spring. On examination of the urine each time, showed traces of sugar. With her ordinary diet sugar was found in the urine, which signified imperfect combustion.

The diet was altered so that nitrogenous substances predominated, fat was added to the food, and the carbo-hydrates were excluded as far as possible. The woman's health was good, and after eight days treatment, the last trace of sugar in the urine had disappeared.

The menses lasted five days, and after five more having elapsed, impregnation took place, the same diet continuing for about eight weeks, when the food was gradually altered. She was in due course confined of a boy.

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Within twelve years this woman was confined six times, bearing four boys and having two miscarriages, both being male foetus. During all these years, the result of examinations of the urine, which were made from time to time, showed clearly that sugar was always normally present when not influenced by dieting.

In all cases, similar process of dieting had preceded, so that it was sufficiently demonstrated, that it could be only the influence of the diet that brought about these remarkable results.

2d. Case of a woman twenty-three years old who had been married five years, and had given births to two girls. Treatment: Sugar and other forms of carbo-hydrate to be avoided, and that more meat be added to the diet. Critical analysis of the urine made every eight days and the diet constantly altered in the direction of increasing the amount of albumen.

This treatment was continued for twelve

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weeks, when impregnation took place, six days after menstruation occurred, which lasted four days. The patient was kept under dietary treatment for three months longer, when she was allowed to follow whatever course she preferred, and bore a fine boy at full term.

The following closing paragraph of Schenk's conclusions are given word by word:

“According to statistics more boys than girls are born in the years with a poor harvest. Bad harvest years are those which favor a flesh diet, as the food-stuffs from the vegetable kingdom do not suffice for the cattle nor for the people either; in consequence of which the cattle are killed and more flesh enters into the diet of the woman who are fructified. If people in general had the normal aptness for procreation in such famine years, the flesh diet might turn the scale in favor of the male sex, it being presupposed that the other conditions were fulfilled.

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“If Thury’s law be considered, Thury also held the ripeness of the ovum to be of importance for male or female ova. The ova was regarded by this author as being more or less ripe, or as male and female, according to the time, whether it happened to be at the beginning or at the end of the rutting. To me, however, the ripeness seems to depend upon the process of physiological combustion in the organism of the mother. According to Thury no attention need be paid by us to the ripeness for fructification, as this ripeness is attained independently of our interference. But, on the other hand, our influence has the effect of producing a male ovum out of the ovule ready to be fructified.

“If the dieting of a woman in the way we recommend is practicable and of indefinite effect upon the development of the future sex, we arrive at a conclusion which may be summed up as follows: If a woman be dieted according

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to our method, she can reach a stage in which she becomes sexually superior to the man, and her off-springs will then be male, in accordance with the law of the cross-heredity of sex."

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CHAPTER VI.

THE AUTHOR'S THEORY, EXPERIMENTS AND PRACTICE.

No nation on this globe is more patriotic than is that of my countrymen the people of France. Whatever else may be said of us, we are at least, intently patriotic. The dream of the average husband and wife, is to have their off-spring figure in the military annals of their beloved country. Hence from my earliest practice come recollections of the desire expressed by young people in wedlock, to have male off-spring, boys to grow up and become military heroes, for the proud satisfaction of their parents and for the glory of France.

Hence it was, that early in my practice, I began to give some attention to the question of the determination of sex.

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From observation, I found that, where the wife was an ardent and voluptuous woman, sexually superior to the husband, the result of such wedlock would almost invariably be male off-spring. As an example, I note the case of a small attenuated tailor, weight about 110 pounds, whose consort was a large well developed and voluptuous woman of some 200 pounds weight. The result of this wedlock was, eight births, all being males, of which seven, ranging in age from five to sixteen years, were alive when I became acquainted with the family.

I also found, that where the woman was considerably older than the husband, even if she was not his superior sexually, the great majority of children resulting from such wedlock were males. I recall the case of a strong young man who came to Paris from Colmar, then in the Department De Haut Rhine, France, now known as a portion of Alsace and Lorraine, which was ceded to Germany as a result of the war of

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1872. This man, at the age of twenty-three years, married a woman who was fifteen years older than himself, both man and wife were well proportioned, the woman's weight was about 140 pounds, that of the husband averaged 165 pounds. The result of this marriage was five children, all boys.

I found further, that where the wife was in prime condition, of fair animal life, but where the husband, although physically much stronger than his wife, was of a phlegmatic temperament, the result of such wedlock would be a majority of males.

I mention the case of a strapping young soldier, age twenty-seven when discharged from the army, married a sprightly young woman twenty years of age, the wife was apparently the sexual inferior of her husband, but was of a bright and lively disposition, whilst the man was of a phlegmatic temperament, slow of movement, and not overly bright. The result

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of this wedlock was nine children, the first being a girl, the other eight were all boys.

I also found, that, where an ordinary woman, neither voluptuous or phlegmatic, was mated to a very ardent man, the result of such wedlock was more girls than boys.

I recall an instance of another soldier, who had served his term, received his discharge, and at the age of twenty-nine years married a buxom lass of twenty-three. He was strong, full of animal life, and very ardent, the result of this wedlock was seven births, the first six being girls the last one a boy.

Another instance, where a strong ardent man, at the age of twenty-five married a girl eighteen years of age, during the first five years of wedlock three girls were born, the husband then became dissipated, deviding his attention between his wife and a mistress. After that time, the wife bore four more children, three being boys and one girl.

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I also came to the conclusion, that, where a phlegmatic woman is mated with an ordinarily average man, they will beget more girls than boys.

I recall an instance, where a well developed strong young woman, married a man every way her inferior, so far as one could judge from appearances, the wife was however phlegmatic, slow of movement, she bore nine children all being girls.

I found also, as a result of my observations, that a young woman who marries an old man, will bear more girls than boys.

Instances to substantiate this conclusion are abundant. I note the case of a young woman of twenty-four, who married a robust man of fifty-three, they continued in the married state for sixteen years, when the husband died, leaving his widow and seven children, all daughters.

In the cases noted above, no efforts whatever were made to influence the determination

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of sex, a close observer, will have no trouble to find similar cases among his acquaintances, these cases prove almost conclusively the law, as laid down by many writers on this subject, of the *cross-heredity of sex*.

Early in my practice, I became interested in the subject of being able to divert the laws of nature in the determination of sex, by frequently hearing from patients of their success in bearing male children, by following the advice of the clergy, which was, for the wife to lie on her right side when conception takes place, and remaining in that position for some little time. Upon investigation I could not find enough cases, where the conditions, temperaments, and other influences of the parents were predisposed for the development of female offspring, who succeeded in bringing forth males, to warrant me in attaching much faith in that practice. Although I was forced to admit that, there was something to it, that where there was

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little sexual difference between husband and wife, the chances between male and female offspring being about equal, such practice would favor the production of male generative germs in the ova of the wife, and the result would naturally be, the birth of a boy.

This led me to further investigation, and I began to look up all the literature on the subject. I found that the practice alluded to, originated in, and was a part of the theory of J. Ch. Henke, who published his book entitled "*The Secret of Nature Completely Discovered both in the Procreation of Man and the absolute choice of the Sex of Children,*" at Brunswick in 1786.

Henke, however, went further, and in addition to the claim, that the right ovary of the female contains generative secretions for the production of the male sex, asserted, that the generative matter of the right testicle of the male serves to fructify ova from which males

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are developed, and that, as the off-spring being evolved out of a mixture of the generative secretions of the two sexes, by manipulation, viz: mixing the semen from the right testicle of the male, with the ova of the right ovary of the female, male off-spring will result, and on the contrary, a female will be the result of the mixture of the semen from the left testicle of the male with the ova from the left ovary of the female.

For several years I experimented with Henke's theory, advising the raising of the testicle up toward the inguinal canal, which is an easy process, and found quite an improvement in the percentage of male births over females, in cases, where the natural conditions of the parents would favor the propagation of females.

One case in particular gave gratifying results; the wife was an ordinary well developed woman, the husband was a large strong man,

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his sensual lips betraying his temperament. The woman had given birth to three daughters, and both husband and wife were craving for male children. I advised the treatment as laid down by Henke, with the caution to the husband, to restrain himself, and abstain, until the tenth day after menses. The result was gratifying in the highest degree, while the couple were favored with only two more children, yet both proved to be boys.

I was greatly interested and beneficently instructed by the work of Mons. Thury, published at Leipzig in the year 1863.

Thury argues, that the condition of the ovum at the time when it is fertilized, determines the sex, that an ovum, in order that it may develop a male germ, must have reached complete ripeness. That when it has reached the advanced stage of ripeness, and is then fertilized, the result will be a male. If, however, the ovum has not reached that advanced or per-

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fect stage of ripeness, when impregnation takes place, a female will be result.

Thury's theory being substantially that, the origin of sex lies in the ovum developing itself in the females ovary, and that the only factor in the development of either sex is the condition of its ripeness at the time of impregnation. According to this doctrine, a woman who is impregnated immediately after menstruation is certain to give birth to a girl, while if impregnation takes place a week or ten days later, the result will be the birth of a boy.

My own observation, led me to advise the fertilization of the ovum, from eight to ten days after menstruation had taken place, where male off-spring was desired, as I found that the larger percentage of male births resulted from conception taking place at such times, while in cases of the impatient ones, fertilizing the ovum in its unripe stages would usually bring forth female off-spring.

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I also discovered that diet exerted considerable influence in the determination of sex, that by curtailment of food containing saccharine matter (sugar), and adding more meat and fat to the diet, a larger percentage of male children was the result. This is no doubt due to the fact, that, the more perfect the combustion in the human body is, the more perfectly ripe becomes the ovary, which being fertilized at this stage, develops a male germ.

At that time we did not have the discoveries of Schenk, who claims that by dieting alone he is able to influence the procreation of male offspring. It should be born in mind that Henke in his time (1786), and Thury, later in 1863, were just as positive, that they had discovered the only true method, and substantiated their theory by well authenticated examples, as was Schenk in 1898.

In medical treatment as in all other matters, there are exceptions to all rules. We find a treat

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ment prescribed for one patient to give prompt relief, while the same treatment on another patient, suffering from a similar ailment, gives no relief, and a different treatment is resorted to. The same applies with much greater force to treatment for determination of sex. Henke's method, is no doubt successful in many cases, equally so is Thury's, last and not least of all comes Schenk's treatment, more critically scientific than his predecessors. Time alone will demonstrate, whether it is the infalable method claimed by its author.

My experience is, that it required the use of all three methods, that of Henke, Thury and so much of Schenk's method, that of dieting, with which I was then acquainted, to bring about the greatest percentage of successful cases.

Undoubtedly, diet exerts as great an influence on the productive organs of the female body, as it does on the general health of the

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body. It is a well-known fact, that, plagues and epidemics follow in the wake of famines; that infectious diseases first attack the weak and debilitated, and those whose condition is out of order. My advice to persons who were exposed to some infectuous disease, or in times of epidemic, was, to eat *moderately good wholesome and nourishing food*, avoiding stimulants, unless accustomed to their use, purify the blood, keep the bowels open, the feet warm, loose no sleep and keep up your courage, a person following this advice is rarely attacked, no matter how much he is exposed to the contagion.

Schenk's dieting treatment is more scientifically precise than anything heretofore suggested, and consists in a critical examination of the urine, to detect the presence of sugar, and changing the diet, until all the traces of sugar in the urine are eliminated. His theory being that, perfect combustion in the body has been

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reached only, when no sugar is wasted in the urine.

In order to test urine for sugar, "*Trommer's Test*" is used most in practice, and is as follows:

Mix five cubic centimetres of urine with an equal volume of ten per cent. solution of potash or soda, and add to the mixture, drop by drop, a ten per cent. solution of sulphate of copper, so long as the resulting hydrated oxide of copper is dissolved by the sugar.

This produces, according to the quantity of sugar contained a more or less ultramarine-blue fluid. Warm this, and the result, in consequence of the reducing action, is a reddish-yellow precipitate of hydrated suboxide of copper which, after a short time, adheres to the sides of the test tube, somewhat in the fashion of a mirror. This is a simple test and it gives good results in presence of more than 0.5 per cent. of sugar. Other tests have been used

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with even better results, such as graduated fermentation-tubes, which is sensitive enough to detect 0.05 per cent. of sugar.

Fischer's phenylhydrazin test can be used as a valuable reagent for the sugar in urine, as this preparation has the characteristic peculiarity of forming crystalline compounds with aldehydes and ketones, it is claimed that even the faintest traces of sugar in the urine, may be detected by this test.

As a result of many years of experimenting with the theories of Henke, Thury and other noted experimentors and writers, I came to the following conclusions, and used the treatments with great success.

Where female offspring was desired, in cases where the parents by nature were predisposed to propagate males only, I advised Henke's method of fertilizing the left ovary with semen from the left testicle, conception to take place so soon after menstruation as is

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practical; no connection to take place after three days following menses. The diet to be changed, omitting fat meats, adding food containing saccharine matter.

Where male offspring was desired, in cases where the parents by nature were predisposed to propagate females, I advised Thury's method of bringing the female ovary to a complete stage of ripeness, both by omitting saccharine matter from the food and adding more meat and fat; restraining connection until ten days after menstruation and practicing Henke's method of fertilizing the right ovary of the female with semen from the right testicle of the male.



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